Depression, Anxiety and Stress among Adolescents and efficacy of Preventive Intervention

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By

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INTRODUCTION

Adolescence is a developmental period which may be conservatively understood as the years between the onset of puberty as well as the establishment of social autonomy. It occurs between ages 13 and 19 and is usually subjected to numerous exposures. Several studies in recent years had manifestly demonstrated that this section of the population group is going through more levels of psychological distress which included Depression, Anxiety, and Stress (DAS) and that can lead to enormous problems in later years.

The world scenario witnesses that one in every eight people live with a mental disorder, the anxiety and depressive disorders as the most common ones (Global Health Data Exchange, 2022). World Health Organization (WHO) in its 2021 report stated that more than 13 percent of adolescents aged 10–19 live with a diagnosed mental disorder with 40 percent of the disorders being anxiety and depression. United Nations International Children's Emergency Fund (UNICEF, 2021) has declared that every year almost 46,000 children between the ages of 10 and 19 end their own lives.

World Health Organization (WHO) report on India as cited in India Today (2022) conveyed that 56 and 38 million Indians suffer from depression and anxiety disorders respectively, out of which 14 percent are adolescents. Sagar et al. (2020) forewarn that the mental disorders as being one of the leading causes of non-fatal disease burden in India. Tamil Nadu, being one of the states in the high socio-demographic index group, accounted for a high prevalence of depressive and anxiety disorders. The Crude Disability Adjusted Life Years Rate of depressive disorders was highest in Tamil Nadu in the adolescent group (The Hindu, 2020). Indian Council of Medical Research survey conducted during the year 2022 revealed that 12-13 percent of students in Tamil Nadu suffers from psychological, emotional and behavioral conditions.

The coinciding symptoms and behaviours of these three psychological problems can lead to all sorts of educational issues, which in turn impact the academic achievement of students. It has also been proved that academic performance from school education to the higher education level is influenced by the symptoms of stress, anxiety, and depression, as these mental disturbances lead to difficulties in concentration, lack of motivation and interest, poor attendance, and poor physical health (Ibrahim, Kelly, and Glazebrook, 2013).

Depression, anxiety, and stress in the school network are considered as significant markers for low degree of emotional well-being. The inabilities to recognize and manage these upsetting attributes would lamentably prompt or expand mental dreariness with bothersome effects all through their lives (Teh et al. 2015). Various studies had discovered the progress from youthfulness to adulthood loaded up with anxiety, stressfulness, and

depression as well. Hence, these three mental issues that affect the mental health conditions of adolescents need to be addressed.

Shastri (2009) stated that prevention and early intervention are recognized as key elements for minimizing the impact of any potentially serious health condition. He also cited the recommendation of World Health Organization (WHO) on early identification and intervention while examining the extent of the gap between the prevalence and treatment of psychiatric disorders. The investment made to identify the mental health problems early and intervene at the right time is cost-effective, as the intervention would be preventing further breakdown and avoid an adult treatment and rehabilitation programme which is much more expensive. Based on such evidences, it is well understood that there is a pressing need to develop and improve adolescent mental healthcare models that could be implemented as preventive and early intervention strategies.

After a detailed exploration of the existing mental health care models, the investigator found it imperative to redesign and merge the two major interventions namely Cognitive Behavioral Therapy (CBT) and Stress Inoculation Training (SIT). CBT has proved its effectiveness in alleviating anxiety and depression through the psychotherapy technique, wherein the individual could recognise and change the incorrect and/or negative thoughts that have been influencing their behaviour. CBT is always one of the identified suitable treatment methods for individuals with anxiety and depression. Miller, et al., (2012) also stated that several methodical reviews of CBT-based interventions in the school setting have been done, with the main focus on prevention of anxiety disorders and depression.

Whereas SIT, though had found an domineering place in clinical setting to reduce stress, it has a unique characteristic of customising for the normal population by preparing an individual to quickly defend against stress triggers by exposing the individual to a milder form of stress (just like vaccination). Stress Inoculation Training (SIT) is a set of cognitive-behavioural techniques developed as a treatment by Donald Meichenbaum. The aim of SIT is to "help individuals cope with the significance of being exposed to stressful events and on a preventative basis to "inoculate" individuals to current and future stressors. The uniqueness of SIT is that it is ready to be tailored to the patron's needs. The SIT was pilot tested among 588 middle school students as per the local needs by Maraichelvi, (2016) in the term of School Stress Inoculation Training (SSIT) and was found to be effective in reducing the stress levels of the experimental group of students. As the term 'inoculation' implies, SSIT was designed to impart skills to enhance resistance to stress.

Put together, adolescence is a transitional period and they are overloaded with multiple things. Hence, the prevalence of mental disorders is common among them. The

relationship between the development of stress, anxiety, and depression among adolescents is also a promising area of inquiry. Hence, identification of the best preventive measure to combat depression, anxiety, and stress among school-going adolescents at the initial stage has become essential. Accordingly, a preventive intervention model (merging CBT and SIT) was formulated and titled as Comprehensive School-based Intervention Training – Depression, Anxiety and Stress (CSIT-DAS). The outcome of the intervention was to build a repertoire of coping skills that could improve their adaptability to physical, mental, and psycho-social changes as it is directly linked with their overall well-being.

Objectives

Primary Objective: To formulate, and analyse the effectiveness of a suitable preventive intervention to alleviate Depression, Anxiety and Stress (DAS) in school-going adolescents

Secondary Objectives

- Explore the level of DAS and its interrelationship among the selected school-going adolescents
- Assess the influence of socio-demographic factors on DAS of the selected school-going adolescents
- Identify the influential factors triggering DAS among the selected school-going adolescents
- Identify and customize a suitable preventive intervention to alleviate DAS among school-going adolescents (CSIT- DAS - Comprehensive School-based Intervention Training – Depression, Anxiety and Stress)
- To analyze the effectiveness and the sustainability of the formulated intervention - CSIT-DAS.

Hypotheses

- $H_{\circ}$ 1- DAS do not correlate with each other
- $H_{\circ}$ 2 - Gender has no effect on the levels of DAS
- $H_{\circ}$ 3- The class of study has no effect on the levels of DAS
- $H_{\circ}$ 4 - Area of Residence has no effect on the levels of DAS
- $H_{\circ}$ 5 - Family type has no effect on the levels of DAS
- $H_{\circ}$ 6 - The education status of the father has no effect on the levels of DAS
- $H_{\circ}$ 7 - The education status of the mother has no effect on the levels of DAS
- $H_{\circ}$ 8 -The formulated preventive intervention titled CSIT-DAS does not decrease the level of DAS among the experimental group of participants.

REVIEW OF LITERATURE

The literature collated on the research topic was presented under the following heads;

A. DAS in school-going adolescents - Aetiology, symptoms, and effects
B. Critical relationship between DAS
C. Prevalent preventive interventions models to alleviate DAS
D. Theoretical framework of Cognitive Behavioural Therapy (CBT) and School Stress Inoculation Training (SSIT)
E. Conceptual framework of the study

METHODOLOGY

The methodology of the study were discussed based on the two phases of study:

- ✓ Phase I: Identify the levels of DAS, its interrelationship, and its determinants
- ✓ Phase II: Effectiveness of pilot strategy Comprehensive School-based Intervention Training – Depression, Anxiety and Stress (CSIT-DAS)

Phase I: Identify the levels of DAS, its interrelationship, and its determinants

A descriptive cross-sectional study predominantly adopting questionnaires was embraced. Coimbatore district in the state of Tamil Nadu was selected as the area for the study. The urban and the extended corporation wards (referred to as semi-urban) of each of the five zones were selected and only higher secondary schools with certain inclusion criteria from each of the places were taken into consideration. Accordingly, a total of 30 schools from all five zones of Coimbatore District were shortlisted. However, after seeking permission from the administrators of all the short-listed schools, only a total of fifteen schools expressed their willingness to participate and permitted the researcher to collect data. The study focused on target respondents of adolescents enrolled in Class 8 and Class 9, as it was during this stage the adolescents were getting ready for the Board exams ($10^{th,}$ 11^{th} and 12^{th} standard based on the Indian Education System) in a year or two. They were exposed to much psychological adversity in the process of getting prepared to face board exams added to the burden of transitional hardships. All students from classes 8 and 9 from the 15 schools constituted the population sample. Accordingly, the population sample accounted for a total of 1038 students. The tools used were;

- *General Profile Questionnaire:* This tool was used to collect the general and personal profile of the selected school going adolescents.
- *Standardized Depression, Anxiety and Stress Scale (DASS-42)*: A standardized tool developed by Lovibond and tilteld as DASS-42 was used to determine the levels of DAS among the school-going adolescents. The scale had 42 items segregated into three mental

states – Depression, Anxiety and Stress having 14 items each. Higher the score, higher was the DAS level in them.

- *Self-formulated Scale on Depression, Anxiety and Stress Determinants (SF-DASD)* – A scale to identify the determinants of DAS among the school-going adolescents was formulated as three subscales (one for each mental state). The number of determinants and the items within each determinant varies for each sub-scale based on the exploratory factor analysis. The details were as follows:
  a) Determinants of Depression scale composed of five determinants namely Attitudinal issues, Present/future life concerns, Academic pressure, Family & relationship issues, and Psychological concerns with 6, 5, 3, 3, and 3 items respectively.
  b) Determinants of anxiety scale composed of four determinants namely Generalized panic, Social anxiety, Social phobia, and Academic anxiety with 6, 4, 3, and 3 items respectively.
  c) Determinants of Stress scale composed of four determinants namely Family stress, Drastic change in life, Attitudinal issue and Academic stress with 6, 5, 4, and 2 items respectively.

The reliability and validity of the scales were tested. The items were formulated in such a way that higher the score in the SF-DASD lower was the effect of determinants.

As the data of the first phase was significantly deviating from normal distribution, nonparametric tests were performed. Both qualitative (Chi-Square) and quantitative analysis (Mann Whitney test for two independent variables and Kruskal - Wallis Test for more than two) were performed to see the significant association between socio-demographic variables and levels of DAS. Spearman's Rank Correlations was carried out to see the significant correlation between DAS and as well as for the determinants of DAS.

Phase II: Effectiveness of pilot strategy Comprehensive School-based Intervention Training – Depression, Anxiety and Stress (CSIT-DAS)

As the study embodies the implementation of the preventive intervention (CSIT-DAS) and analyse its effectiveness in terms of alleviated DAS, out of the 15 schools identified with a sample size of 1038, only 2 schools provided consent and were ready to spare a few structured hours within a period of 4 months needed for intervention. Out of these two schools, the school with a greater mean score on DAS constituted the experimental group and the other school was considered the control group. Accordingly, all students in the 8^{th} and 9^{th} classes of these two schools constituted the sample for the second phase of the study (Experimental group - 60 students, Control group – 60 students).

The tool for this phase was the pilot intervention called as Comprehensive School-based Intervention Training – Depression, Anxiety and Stress (CSIT-DAS). Understanding the prevalence of mental health problem in terms of DAS among the school-going adolescents, the researcher focused on a primary intervention model as it aims to prevent the adolescent who were at the risk to become exposed to DAS. An intervention customizing the CBT and SIT framework in accordance with the results of the first phase of the study, was formulated by a team of experts in the field of Psychology, and implemented by a handful of experienced trainers. The Institutional Ethical clearance approved the study with an approval number - IHEC / 17-18HD/29.

The CSIT-DAS, exclusively designed for the student population, was formulated to be implemented through four-stage training phases namely: IQ Test & Trust Building; Orientation and pretest evaluation; Education and Training (Psycho Education and Behavioural & Cognitive training); and Posttest evaluation with stipulated follow ups. The intervention was conducted in 15 sessions (2 hours each) spread across four months.

The data set of the phase II test results was not significantly deviating from normal distribution, hence parametric tests were used. A Two Way MANOVA of repeated measures [2 (experimental and control groups) x 2 (Pre and Post evaluation scores of the three dependent variables, depression, anxiety and stress)] was computed to find the effectiveness of CSIT-DAS. To examine the sustainability of the CSIT-DAS, two-way MANOVA of repeated measures (Pre intervention, Post intervention, Follow up 1 and Follow up 2) was carried out.

RESULTS AND DISCUSSION - KEY FINDINGS

Phase I: Identify the levels of DAS, its interrelationship, and its determinants

A. General profile of the respondents

- ✓ The highest percentage of respondents (44.4%) were from 13 years followed by 14 years
- ✓ Female respondents (50.7%) were more than the male respondents (49.3%)
- ✓ Most of the respondents were from 9th standard (51.4%) followed by class 8 (48.6%)
- ✓ Around 60% of them hailed from nuclear family and 30% from by joint family
- ✓ The ratio of respondents from urban, semi-urban and rural stands at 2:1:1
- ✓ Educational status of parents – The mothers' educational status though seems to be on par with fathers' educational status, the percentage of mothers (8.8%) surpassed fathers (4.6%) in terms of not having formal education.

B. Categorization of the respondents based on the levels of DAS

- ✓ Majority of them were moderately depressed (35%), followed by severely depressed (18.2%) and extremely severe (5.4%).

- ✓ The threshold score for the participants being labelled as anxious was also categorized under five categories, wherein, 35.7 percent (368 out of 1038) were anxious at a moderate level. Also, it was observed that 25.8 and 15.9 percent had severe and extremely severe anxiety respectively.
- ✓ The percentage of (32.9%) of the respondents who were moderately stressed was more in number (342) when compared to the other levels. The table further states that a good percentage of respondents were severely stressed (14.5%) and extremely severely stressed (3.4%).
- ✓ Anxiety tops the list with 77.2 percent of the selected respondents being affected followed by depression (58.6%) and stress (50.8%).

C. Interrelationship between DAS among the respondents

- ✓ The three mental issues – Depression, Anxiety, and Stress have a significant positive moderate association with each other.
- ✓ Depression is significantly correlated with anxiety (r=0.495, P=0.002) and stress (r=0.378, P=0.045).
- ✓ The anxiety and stress also had significant correlation (r=0.401, P=0,021).

D. Association between socio-demographic variables and DAS

- ✓ The stress means score was high among male students (19.03) than female counterparts (18.64). The anxiety and depression scores revealed that females were more anxious and depressed (14.17 and 15.66 respectively) in comparison to males (13.74 and 15.34 respectively). However, the Mann-Whitney U test reveals that these results were not statistically significant for Depression ($|z| = 0.95$; P value = 0.340); Anxiety ($|z| = 1.27$; P value = 0.203); Stress ($|z| = 0.66$; P value 0.508. Hence gender did not have an impact on DAS, thereby $H_{\circ}$ 2 - Gender has no effect on the levels of DAS is Accepted
- ✓ The Mann- Whitney U test between the 8th and 9th class of study reveals a statistically significant value of ($|z| = 2.85$; P value= 0.004) in relation to stress thereby accepting the hypothesis $H_{\circ}$ 3 for depression and anxiety and rejecting for stress. The comparison of the respondents' mean scores on stress was found to be high among class 9 against class 8 (19.49 against 18.18).
- ✓ The significance of the association between the area of residence (Rural, Semi-Urban, Urban) of the selected respondents in relation to the DAS mean score, reported a statistically significant value of (χ^2 (2) = 9.651; P value= 0.008) for anxiety. Hence the hypothesis $H_{\circ}$ 4 is accepted for depression and stress but rejected for anxiety.

- ✓ Type of family does not significantly influence the occurrence of DAS (χ^2 (2) = 3.084; P value= 0.214); (χ^2 (2) = 4.374; P value= 0.122); χ^2 (2) = 3.453; P value= 0.178 among the selected section of respondents and hence hypothesis H_0 5 is accepted.
- ✓ The mean scores of the respondents in the stress domain were found to be amplified among the students of graduated fathers (19.85), closely followed by the children of fathers who had their primary school level of education (18.87). A statistically significant difference between the levels of fathers' education and the stress mean score at a 5 percent level (χ^2 (2) = 11.748; P value= 0.019) was noted only for the stress domain, thereby the hypothesis H_0 6 is accepted for depression and anxiety and rejected for stress.
- ✓ A statistically significant association was found between the level of mothers' education and the anxiety scores (χ^2 (2) = 14.992; P value= 0.005). Hence the hypothesis H_0 7 is accepted for depression and stress and rejected for anxiety. The mean scores showed that the children of mothers with no formal education were more anxious.

E. Determinants of DAS

- ✓ *Determinants of Depression:* Though all the five determinants are significantly correlated with the depression score, psychological concerns (r=-0.741, P=.000**) attitudinal issues, (r=-0.728, P=.000**) and family & relationship issues (r=-0.701, P=.000**) were very strongly correlated. The present/future life concerns (r=-0.342, P=.000**) and academic pressure (r=-0.305, P=.000**) had a moderate correlation.
- ✓ *Determinants of Anxiety:* The relationship between specific phobias (r=-0.745, P=.000**) and the Anxiety of the students was very strong. Generalized panic (r=-0.612, P=.000**) and social anxiety (r=-0.581, P=.000**) were strongly correlated whereas Academic anxiety (r=-0.426, P=.000**) had a moderate association with their anxiety.
- ✓ *Determinants of Stress:* Stress in the students had a very strong relationship with two determinants namely family stress (r=-0.718, P=.000**) and attitudinal stress (r=-0.707, P=.000**). Drastic life changes (r=-0.317, P=.001**) had moderate correlation and the academic stress (r=-0.236, P=0.012**) though had a significant correlation the magnitude of the relationship was weak.

Phase II: Effectiveness of CSIT-DAS

F. Efficacy of CSIT-DAS - Comparison between pre-test and post-test DAS levels between Experimental and Control Group

- ✓ The experimental group of respondents' mean score showed a tremendous decline in the post-evaluation measures on all the three dependent variables Depression (8.72 from 25.43), Anxiety (7.55 from 24.03) and Stress (13.18 from 25.28). On the other hand, the

control group of respondents' mean score on all the three dependent variables was augmented {Depression (22.60 from 18.92), Anxiety (18.55 from 14.30) and Stress (24.00 from 20.22)}

- ✓ Multivariate tests indicates a statistically significant effect confirming that the experimental and control group do indeed differ in terms of intervention. The effect of time measures endorse that the pre and post-level of DAS vary in terms of time. The partial eta square of both the 2 groups of intervention (.327) and 2 groups of time measures (.620) showed a strong effect size.
- ✓ The Multivariate tests also showed a statistically significant interaction between intervention and time over DAS and explained 82.5% variance between the interacting groups
- ✓ To determine which of the dependent variable accounts for the significance in multivariate tests, univariante analysis was computed. The interaction between the group and the time indicated a significant effect on all the three dependent variables – Depression (η 2 = 770, P = .000), Anxiety (η 2 =.785, P = .000) and Stress (η 2 = 2.17, P = .000). It also showed a large effect size between the group and time measure.
- ✓ The MANOVA plots showing the change in the direction and magnitude of the mean score of the three dependent variables (Depression, Anxiety and Stress) with reference to the two-time measure (Pre and Post) vividly portrays that the mean score of the experimental group has a significant decline in all the three dependent variables. This decline is indicative of lower depression, anxiety and stress among the experimental group respondents. Whereas, for the control group, the mean score showed an inclination towards higher score in all the three dependent variables. The increase in the score is indicative of higher depression, anxiety and stress among the control group respondents.

G. Sustainability of CSIT- DAS among the experimental group in reducing DAS

- ✓ The decline in the mean score of all the three dependent variable – depression (7.80 from 25.43), anxiety (6.40 from 24.03) and stress (9.75 from 25.28) - within the four-time repeated measures authenticates the sustainability of the intervention titled CSIT-DAS. However the follow up 2 score in both anxiety and stress (6.40 and 9.75 respectively) had a mild increase in mean score when compared with follow up 1 (6.35 and 9.27 respectively)
- ✓ The multivariate tests of the interaction between the four times measures of the experimental group of participants was significant with partial eta square showing a strong effect size (η 2=0.840, P=0.000**) on the three dependent variables put together.

- ✓ To find out which of the dependent variable contributed to the combined significant effect, univariate analysis of variance was computed. The (partial eta square) η 2 of 0.64, 0.68, and 0.50 respectively, demonstrates large effect that the time measures (4 measures) had on the three dependent variables - Depression, Anxiety and Stress. Hence, the two ways repeated measures MANOVA statistics has rejected the hypothesis H_o 8 – The formulated preventive intervention does not decrease the level of DAS among the experimental group of participants.

SUMMARY AND CONCLUSION

Depression, anxiety, and stress directly or indirectly have an impact on one's lifestyle in different aspects. These issues mandate research in the domain of mental health. The key finding of the present study is that out of 1038 total respondents, majority of them had perceived to be depressed, anxious, and stressed, at varying levels between mild and extremely severe where more children were found to be anxious, followed by depression and stress. All the five determinants of depression are significantly correlated. All the four determinants of anxiety and stress are also significantly correlated. The CSIT-DAS formulated for this sect of population based on the theoretical models of CBT and SIT and the results of the first phase of study, was found to be effective in two terms. Firstly, the experimental group showed a tremendous decline in the post-intervention mean score on DAS compared to the pre-evaluation mean score and was statistically significant. Secondly, the sustainability of CSIT-DAS was also witnessed with the stipulated follow up cycles. The finding clearly states that the CSIT-DAS should be a continuous training with periodic sessions of rejuvenation.

RECOMMENDATIONS

- The tool DASS-42 is just a screening tool so children who are depressed, anxious and stressed at extremely severe level should be referred to clinical assessment. Moreover, the alarming prevalence rate of DAS in this sect of the population has to be immediately addressed, as DAS poses a threat to the holistic living of adolescents. Although many schools have a self-formulated school health program, adequate importance is not given in all the dimensions.
- The alarming risk of DAS among school students is also caused by the family pressure to perform better; hence the researcher feels that the focus of intervention should not only be on children but also on the parents.
- CSIT-DAS has boosted the students' awareness and developed a sense of mastery over the usage of coping skills, which undoubtedly validates the efficacy of the CSIT-DAS intervention provided to them. Therefore, CSIT-DAS especially tailored for school

children is strongly recommended to be used by every school to alleviate the risks of mental issues prevalent among the student population.

- Altogether, every school need to have a full time counsellor with a deeper understanding of the principles of child and adolescent development.

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